

## PATENT ABSTRACTS OF JAPAN

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## (54) ORIENTATION FILM OF LIQUID CRYSTAL

## (57)Abstract:

PURPOSE: To prevent the generation of disclination by making a protruded cross sectional form of an orientation film assymetric, and whereby making pre-tilt angle not less than  $1^\circ$ .

CONSTITUTION: An orientation film 6 is formed out of thermoplastic synthetic resin. A plurality of protrusions 7 are formed almost in parallel with each other on the orientation film 6, and the cross sectional form of the protrusion is triangle which is horizontally assymetric. Namely, a ration  $\theta_1/\theta_2$  of the right and left angles of the top angle divided by a vertical line 1 drawn from the top point of the triangle will not be 1. As for the formation of the orientation film 6, grating is carried out to form grating correspondent to the surface shape of a desired orientation film 6, and nickel plating is carried out on the grating by electroforming, so as to form a replica made of nickel. A thermoplastic resin is applied to a substrate 5 provided with a transparent electrode, which is heated and the replica is thus pressed, and the unevenness of the grating is transcribed. A pre-tilt angle can thus be not less than 1 by the orientation film 6.

